

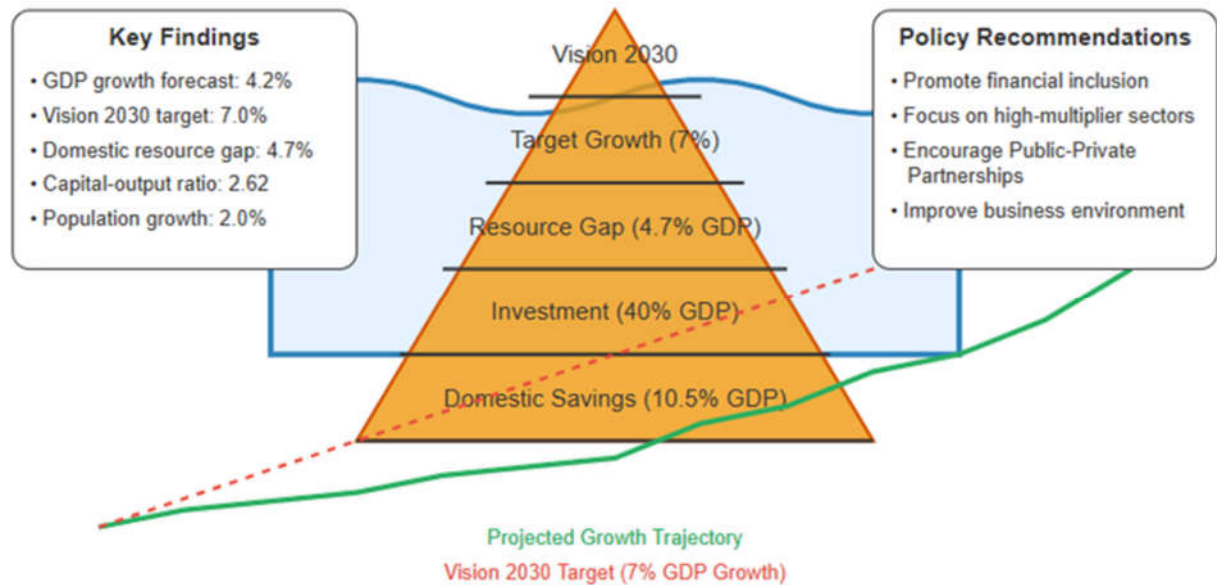
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Financing Sustainable Growth in Egypt: Bridging the Savings-Investment Gap Through Agricultural Development Toward Vision 2030

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Graphical Abstract:



Abstract: This paper investigates the evolution and interrelation of Egypt’s domestic savings, investment, and capital stock in the context of the Harrod-Domar growth model to assess the country’s capacity to finance sustainable economic growth internally. Drawing on historical data and forward-looking projections up to 2030, the study quantifies Egypt’s domestic resource gap and the shortfall between savings and investment. It evaluates its implications for achieving the ambitious targets in Egypt’s Vision 2030. The analysis reveals that despite economic output and investment rate improvements, persistent savings deficits and demographic pressures constrain capital accumulation and self-sustained growth. The study highlights the extent of external financing needs by estimating required investment rates to maintain target GDP growth levels and comparing them with projected savings capacities. It identifies critical policy levers to enhance domestic resource mobilization. The findings underscore the need for a balanced approach combining fiscal discipline, private sector engagement, and financial sector deepening to bridge the resource gap and ensure inclusive, resilient development by 2030.

Keywords: Harrod-Domar Growth Model; Domestic Resource Gap; Economic Development; Agricultural Investment.

1. Introduction

A stable economy is fundamental to achieving comprehensive and sustainable development, especially in developing countries like Egypt (Britannica, 2024). Both public and private investments are essential drivers of economic growth, with public investment playing a particularly significant role in advancing national development objectives (Agriculture Minister, 2023). The agricultural sector is a cornerstone of Egypt's economy, contributing more than 13% to GDP and employing over a quarter of the national workforce in 2023 (FAO, 2023a). This sector not only ensures food security but also provides vital raw materials for industry and is a significant source of foreign currency through exports, which reached \$9.2 billion in 2023 (The Ministry of Planning and Economic Development, 2023).

Recognizing the sector's strategic importance, the Egyptian government has prioritized agricultural development through a series of large-scale initiatives, including the 1.5 Million Feddan Project, the Sinai Peninsula Development Project, and the expansion of advanced irrigation systems. These projects aim to increase agricultural productivity, optimize resource use, and strengthen food and energy security in alignment with Egypt's Vision 2030, which seeks to build a competitive, balanced, and diversified economy (Yang et al., 2025).

Reflecting this commitment, investments in agriculture and irrigation surged by 71% year-on-year in FY 2023/24, reaching EGP 116.6 billion (\$3.77 billion) (Zhang et al., 2025). The government's strategy also emphasizes increasing private sector participation, with private investments accounting for 44% of total sector investments (Gonzales-Gemio and Sanz-Martín, 2025). As a result, the total value of agricultural production rose by 4.1% to EGP 1.34 trillion, representing 11.3% of GDP in 2023/24 (The Ministry of Planning and Economic Development, 2023). These efforts underscore the central role of the agricultural sector in Egypt's economic and social reform agenda and highlight the government's ongoing commitment to revitalizing the industry to stimulate economic growth and ensure long-term sustainability (Marzouk et al., 2024).

Research Problem

Despite Egypt's ambitious Vision 2030 strategy, which seeks to establish a competitive, knowledge-based, and diversified economy capable of sustainable and inclusive growth, the country continues to face persistent macroeconomic challenges that threaten its development trajectory (Gonzales-Gemio and Sanz-Martín, 2025). Key economic variables, including low national savings rates, insufficient domestic investment, suboptimal capital accumulation, and rapid population growth, pose significant constraints on Egypt's ability to achieve its targeted economic growth rate of approximately 7% by 2030 (The Ministry of Planning and Economic Development, 2023).

Recent data indicate that Egypt's domestic savings rate remains below 10% of GDP. In comparison, investment rates have stagnated at around 12.6% of GDP, which is insufficient to finance the capital formation required for high growth. At the same time, Egypt's population is projected to reach between 112 and 128 million by 2030, exerting further pressure on domestic resources and increasing the demand for jobs, infrastructure, and social services (FAO, 2023b). These dynamics have resulted in a widening domestic resource gap, compelling Egypt to rely

more heavily on foreign investment and external borrowing, which may undermine economic stability and resilience (Marzouk et al., 2024).

Given these challenges, there is a critical need to systematically assess the current status and future trends of the most influential economic variables—namely, national savings, investments, capital stock, and population—and to forecast the size of the domestic resource gap that must be bridged to achieve the targeted growth rate outlined in Egypt's Vision 2030 (Yang et al., 2025). Addressing this research problem is essential for informing evidence-based policy interventions that can close the resource gap, enhance investment efficiency, and ensure that Egypt's economic development is both inclusive and sustainable (Ansari et al., 2021).

Research Objectives

The primary objective of this research is to systematically assess the status and future trajectories of the key economic variables influencing Egypt's economic development rates during the period 1990–2021, with particular focus on national savings, investment, capital stock, and population dynamics. The study aims to: (i) *Analyze Trends and Interactions*; Examine historical trends and interrelationships among national savings, investment levels, capital accumulation, and population growth, and how these variables have shaped Egypt's economic development over the past three decades, (ii) *Forecast Economic Variables*; Predict the future paths of these core economic indicators—including the capital/output ratio—over the period 2022–2030, using econometric modeling and scenario analysis, in line with Egypt's Vision 2030 targets, (iii) *Estimate the Domestic Resource Gap*: Quantify the size of the domestic resource gap (the difference between required and available savings and investments) necessary to achieve the targeted economic growth rate of approximately 7% as set out in Egypt's Vision 2030 strategy, (iv) *Determine Investment Requirements*: Estimate the volume of investment needed to bridge the resource gap and support sustainable, inclusive economic growth, considering demographic pressures and structural economic challenges, and (v) *Support Policy Formulation*; Provide evidence-based recommendations to inform policy interventions aimed at mobilizing domestic resources, enhancing investment efficiency, and aligning growth with the Sustainable Development Goals and Egypt's Vision 2030.

By addressing these objectives, the research seeks to contribute to a deeper understanding of the constraints and opportunities facing Egypt's economic development and to support the country's efforts to achieve a balanced, knowledge-based, and resilient economy by 2030.

2. Research Methodology

This research adopts a quantitative, econometric approach grounded in the theoretical framework of the Harrod-Domar growth model. This model provides a foundational basis for examining the relationship between savings, investment, capital formation, and economic growth, particularly within the context of developing economies such as Egypt (Blume and Sargent, 2015; Domar, 1946).

2.1. Theoretical Framework: Harrod-Domar Growth Model

The Harrod-Domar model posits that economic growth is a function of the savings rate and capital productivity, captured by the marginal capital-output ratio (MCOR). The model is expressed as:

$$G(Y) = \frac{s}{MCOR}$$

Where: $G(Y)$ is the GDP growth rate, s is the national savings rate, and $MCOR$ is the marginal capital-output ratio, representing the capital needed to generate an additional output unit.

This model underscores investment's dual role in stimulating aggregate demand and expanding productive capacity. It is particularly relevant to the Egyptian context, where limited domestic savings constrain capital formation and economic growth. The model also accounts for structural barriers such as rapid population growth, which can dilute per capita income gains and undermine growth sustainability (Smith and Todaro, 2003).

2.2. Data Sources and Variables

The analysis covers the period 1990–2021 using annual time-series data for the following key variables: Gross Domestic Product (GDP), Gross National Savings (GNS), Gross Capital Formation (GCF), Population (P), Capital Stock (estimated indirectly) (CS), Investment-GDP Ratio (IGR), and Capital-Output Ratio (MCOR).

Data are primarily obtained from (CAPMAS, 2023; WBDI, 2023), and publications from Egypt's (The Ministry of Planning and Economic Development, 2023).

2.3. Estimation Procedures

The research methodology proceeds in two main stages:

a) Descriptive and Econometric Analysis (1990–2021)

First, the historical behavior of savings, investment, and capital stock is analyzed using descriptive statistics and trend analysis. The capital-output ratio is computed annually as:

$$MCOR = \frac{\Delta K}{\Delta Y}$$

Where: ΔK is the change in capital stock, and ΔY is the change in GDP.

This ratio is then used to compute GDP growth using the Harrod-Domar growth function. The investment efficiency is also evaluated to estimate the required levels of savings and investment to meet specific growth targets.

b) Forecasting Economic Indicators (2022–2030)

The FORECAST is used to estimate the future economic development gap. The LINEAR function in Microsoft Excel is employed, based on historical data from 1990 to 2021. The function estimates future values using linear regression:

$$\text{FORECAST}(x, \text{known_ys}, \text{known_xs})$$

Where: x is the year to be forecasted (2022–2030), known_ys are the values of the economic indicator (dependent variable), and known_xs are the years (independent variable). This approach allows for predicting National savings and investment levels, GDP and capital stock growth, Capital-output ratio trends, and Domestic resource gap estimates under different capital efficiency scenarios.

Using these forecasts, the study quantifies the required volume of investment necessary to reach Egypt's targeted growth rate of 7% annually as stated in Egypt Vision 2030. The domestic resource gap is between the required investment (from target growth and $MCOR$) and projected national savings.

2.4. Addressing the Savings-Investment Gap

Finally, the study assesses the size of the savings-investment gap and proposes policy recommendations to bridge it. These include options for enhancing domestic savings mobilization and attracting foreign direct investment, in line with development finance theory (Fei and Ranis, 1968; UNCTAD, 2020).

3. Results and Discussions

3.1. Evaluating the Dynamics of Core Economic Indicators Influencing Development in Egypt

Tables 1 and 2 present the trend analysis results, offering valuable insights into Egypt’s macroeconomic development trajectory over the past three decades. In particular, the trends in Gross Domestic Product, National Capital, Domestic Savings, National Investments, National Imports, National Exports, and Population Growth reveal key dynamics underlying economic performance and structural transformation in Egypt.

The analysis reveals a consistent and statistically significant upward trend in Egypt’s GDP over the study period. The GDP increased from a low of approximately EGP 191.0 billion in 1990 to a peak of around EGP 3,634.8 billion in 2021, with an annual average of EGP 1,316.7 billion. According to Equation 1, GDP increases annually by an average of EGP 123.6 billion, with an estimated annual growth rate of 9.4%. This trend is statistically significant at the 1% level, and the high coefficient of determination ($R^2 = 0.84$) suggests that time-related structural and policy developments account for 84% of the observed variation in GDP. The remaining 16% may be attributed to other macroeconomic or external factors not captured in the model. The F-statistic of 151.8 further confirms the strong explanatory power of the model and its robustness in fitting the data.

The value of national capital also demonstrates a clear positive trend, increasing from approximately EGP 23.6 billion in 1991 to EGP 983.1 billion in 2021, with an average annual value of EGP 234.6 billion. Equation 2 indicates a statistically significant yearly increase of EGP 24.3 billion, translating into an annual growth rate of approximately 10.4%. The regression model’s coefficient of determination ($R^2 = 0.73$) indicates that 73% of the variability in national capital is explained by time-related factors, with the remaining 27% influenced by unaccounted-for variables. The F-statistic of 80.8 confirms the model's goodness of fit and highlights the strong association between capital accumulation and Egypt’s long-term development trajectory.

Domestic savings, a cornerstone of investment financing and economic resilience, have similarly experienced significant growth over the study period. The data show that the value of savings rose from EGP 14.7 billion in 1991 to EGP 428.9 billion in 2021, with an annual average of EGP 137.4 billion. As shown in Equation 3, domestic savings increased by EGP 13.1 billion per year, with a yearly growth rate of 9.5%. This relationship is statistically significant at the 1% level.

However, the coefficient of determination ($R^2 = 0.59$) suggests that only 59% of the variation in savings can be explained by the time factor, indicating that other influential factors, such as income levels, interest rates, inflation, and fiscal policies, play a more prominent role compared to GDP and capital. The F-statistic of 43.6 still confirms the statistical reliability of the model.

Table 1. Evolution of Economic Indicators Influencing Egypt’s Economic Development

Years	Gross Domestic Product	National Capital	Domestic Savings	Investment	Exports	Imports	Population
1990	191	27.7	15.52	38.96	19.27	31.45	56.13
1991	216.8	23.55	14.67	32.05	30.94	39.82	57.42
1992	244.2	27.1	23.6	34.57	39.5	43	58.67
1993	247	30.8	24.2	36.59	40.1	46.7	59.88
1994	266.7	36.1	26.5	36.16	39.5	49.1	61.1

1995	275	41.1	30.6	37.08	46	56.5	62.33
1996	282.6	41.6	29.1	40.94	47.6	60.1	63.6
1997	320.5	46.7	30.6	45.96	50.1	66.2	64.89
1998	335.7	61.8	34.5	51.09	46.6	73.9	66.2
1999	351.7	66.5	41.1	64.45	46.3	71.7	67.52
2000	332.5	66.5	44	63.58	55.1	77.6	68.83
2001	354.5	65.5	48.1	76.51	62.7	80.1	70.15
2002	390.6	68.2	51.7	68.1	69.4	85.1	71.49
2003	456.3	70.5	59.7	79.56	91	101.8	72.83
2004	506.5	82.2	75.6	96.46	137	143.6	74.17
2005	581.1	96.8	84.6	115.74	163.4	175.6	75.52
2006	710.4	115.7	105.7	155.34	185	195	76.87
2007	588.3	155.3	121.2	197.14	225.3	259.4	78.23
2008	994.1	200.5	150.4	207.64	295.9	346	79.64
2009	1150.6	200	130.8	224.4	260.1	329.3	81.13
2010	1309.9	235.3	172.1	256	257.6	320.8	82.76
2011	1713.1	234.5	178	236.07	282	338.5	84.53
2012	1924.8	268.4	135.8	241.61	274.6	407.2	86.42
2013	2205.6	264.4	146.5	265.09	316.6	434.5	88.4
2014	2473.1	290.6	111	333.71	303.4	483	90.42
2015	2674.4	349.2	142	392.04	322.2	529.4	92.44
2016	3409.5	407.5	148.6	514.31	280.3	533.1	94.45
2017	3417.1	626.8	158.7	721.13	295.9	639.2	96.44
2018	3451.6	685	409.1	942.2	316.6	688.5	98.42
2019	3526.5	764.5	683.7	1165.7	322.2	723.6	100.39
2020	3598.9	873.3	542.3	2796.4	386	793.2	102.33
2021	3634.8	983.1	428.9	3820.87	464.9	823.8	104.26
Average	1316.73	234.59	137.47	418.36	180.41	282.71	78

Note: Value in million pounds, population in million people. *Source:* Ministry of Economic Development website: www.mop.gov.eg, World Bank website: www.data.albankaldawli.org

The data demonstrate a substantial and statistically significant upward trend in national investments in Egypt. Investment levels increased from approximately EGP 32.1 billion in 1991 to a high of about EGP 3,820.9 billion in 2021, with an annual average of EGP 418.5 billion.

According to Equation 4, the value of national investments has grown by approximately EGP 54.8 billion annually, with an average annual growth rate of 13.1%. This growth is statistically significant at the 1% level. However, the coefficient of determination ($R^2 = 0.40$) suggests that only 40% of the changes in investment levels can be explained by time-related factors, leaving 60% attributable to other macroeconomic, fiscal, or institutional variables not captured in the model. The F-statistic of 19.9 confirms the model's moderate explanatory power, indicating that while investments have increased significantly, their evolution is influenced by complex dynamics beyond time trends alone.

Table 2. Time Trend Equations of Key Economic Variables Influencing Economic Development in Egypt

Equation	Variables	Amount of Change	Annual Growth Rate (%)	T-statistic	R ²	F-statistic
1	Gross Domestic Product	123.64	9.39	(12.32)**	0.84	151.78**
2	National Capital	24.31	10.36	(8.99)**	0.73	80.82**
3	Domestic Savings	13.06	9.50	(6.60)**	0.59	43.56**
4	Investment	54.81	13.10	(4.46)**	0.40	19.89**
5	Exports	13.36	7.41	(17.64)**	0.91	311.17**
6	Imports	25.39	8.98	(15.71)**	0.89	244.61**
7	Population	1.53	1.96	(54.72)**	0.99	2994.28**

Note: Value in million pounds, population in million people. Significant at 5% (*) and 1% (**). Where: Y_i represents the estimated value of the economic variable under study, T_i denotes the time variable, $i=1,2,3,\dots,32$ corresponds to the number of years in the study period—source: Computed results based on the data presented in Table 1.

Exports have also experienced a notable upward trend. The value of national exports rose from EGP 19.3 billion in 1990 to EGP 464.9 billion in 2021, with an annual average of EGP 180.4 billion. As shown in Equation 5, exports increased annually by approximately EGP 13.4 billion, representing a yearly growth rate of 7.4%, a statistically significant change at the 1% level. The high coefficient of determination ($R^2 = 0.91$) indicates that 91% of the variation in export performance is explained by time-related developments, suggesting a strong and consistent policy or structural impact. The F-statistic of 311.2 confirms the model's robustness, highlighting the trend estimation's reliability.

Similarly, Egypt's imports have grown significantly, rising from EGP 31.5 billion in 1990 to EGP 823.8 billion in 2021, with an average annual value of EGP 282.7 billion. According to Equation 6, imports increased annually by approximately EGP 25.4 billion, corresponding to a yearly growth rate of 9.0%. This increase is also statistically significant at the 1% level. The coefficient of determination ($R^2 = 0.89$) suggests that 89% of the variability in import values is due to time-dependent factors, with only 11% resulting from other influences. The high F-statistic (244.6) reinforces the model's validity and its suitability for capturing import trends.

Population growth, a key demographic and economic determinant, has also shown a steady and statistically significant upward trend. Egypt's population increased from 56.0 million in 1990 to 104.0 million in 2021, with an average of 78.0 million over the study period. Equation 7 shows that the population grew by approximately 1.0 million people annually, with an annual growth rate of 2.0%. The growth trend is statistically significant at the 1% level, and the coefficient of determination ($R^2 = 0.99$) indicates that 99% of the variation in population size can be attributed to the time factor. The extremely high F-statistic 2,994.3 underscores the strength and consistency of this trend, reflecting sustained demographic growth that poses both opportunities and challenges for economic planning and development.

3.2. Economic metrics influencing Egypt's rates of economic development

Tables 3 and 4 present the evolution of economic indicators that influence the rate of economic development in Egypt over the period from 1990 to 2021.

The capital-output ratio, a key efficiency metric for investment, ranged from 19.8 in 1991 to a minimum of 2.1 in 2021, with an average of approximately 4.5. As shown in Equation 8, the COR declined over time at an annual rate of 0.12; however, this decline was statistically insignificant. The relative stability of the COR suggests that, on average, each EGP 4.5 invested in the economy produced an additional EGP 1 of GDP, reflecting the prevailing investment efficiency over the study period.

Table 3. Economic Indicators Influencing Economic Development in Egypt

Years	Gross Domestic Product	Capital coefficient	Gross capital	Domestic savings	Investment	Imports	Exports	Population growth rate
% GDP								
1990	5.70	5.05	14.50	8.13	20.40	10.09	16.47	3
1991	1.10	19.78	10.86	6.77	14.78	14.27	18.37	2
1992	4.40	4.40	11.10	9.66	14.16	16.18	17.61	2
1993	2.90	6.84	12.47	9.80	14.81	16.23	18.91	2
1994	4.00	5.20	13.54	9.94	13.56	14.81	18.41	2
1995	4.60	4.34	14.95	11.13	13.48	16.73	20.55	2
1996	5.00	3.64	14.72	10.30	14.49	16.84	21.27	2

1997	5.50	3.20	14.57	9.55	14.34	15.63	20.66	2
1998	4.00	5.34	18.41	10.28	15.22	13.88	22.01	2
1999	6.10	3.54	18.91	11.69	18.33	13.16	20.39	2
2000	5.40	3.65	20.00	13.23	19.12	16.57	23.34	2
2001	3.50	5.17	18.48	13.57	21.58	17.69	22.6	2
2002	2.40	7.59	17.46	13.24	17.43	17.77	21.79	2
2003	3.20	5.29	15.45	13.08	17.44	19.94	22.31	2
2004	4.10	4.15	16.23	14.93	19.04	27.05	28.35	2
2005	4.50	4.02	16.66	14.56	19.92	28.12	30.22	2
2006	6.90	2.73	16.29	14.88	21.87	26.04	27.45	2
2007	7.10	2.94	26.40	20.60	33.51	38.3	44.09	2
2008	7.20	3.13	20.17	15.13	20.89	29.77	34.81	2
2009	4.70	4.11	17.38	11.37	19.50	22.61	28.62	2
2010	5.10	3.82	17.96	13.14	19.54	19.67	24.49	2
2011	1.80	9.66	13.69	10.39	13.78	16.46	19.76	2
2012	2.20	7.25	13.94	7.06	12.55	14.27	21.16	2
2013	2.20	6.52	11.99	6.64	12.02	14.35	19.7	2
2014	2.90	5.20	11.75	4.49	13.49	12.27	19.53	2
2015	4.40	4.69	13.06	5.31	14.66	12.05	19.8	2
2016	4.30	4.19	11.95	4.36	15.08	8.22	15.64	2
2017	4.20	3.27	18.34	4.64	21.10	8.66	18.71	2
2018	5.30	3.51	19.85	11.85	27.30	9.17	19.95	2
2019	5.60	2.70	21.68	19.39	33.06	9.14	20.52	2
2020	3.60	2.70	24.27	15.07	77.70	10.73	22.04	2
2021	3.30	2.14	27.05	11.80	105.12	12.79	22.66	2
Average	3.98	4.46	16.22	10.36	19.46	15.72	22.02	2

Note: Value in million pounds, population in million people. *Source:* Computed results based on the data presented in Table 1, World Bank website: www.data.albankaldawli.org

The domestic savings rate fluctuated between a low of 4.4% in 2016 and a high of 20.6% in 2007, with an overall average of 10.4%. Equation 9 indicates that the savings rate experienced a marginal and statistically insignificant annual increase of 0.02%. The sharp decline in savings between 2012 and 2017 is likely attributable to macroeconomic instability, including currency depreciation and high inflation, which eroded real incomes and constrained the public's ability to save.

In contrast, the national investment rate demonstrated a more dynamic trajectory, rising significantly at an average annual growth rate of 5.0%. It peaked at 105.1% in 2021, following a low of 12.0% in 2013. Equation 10 confirms a statistically significant annual increase in the investment rate of approximately 0.98% ($p < 0.01$). However, the coefficient of determination ($R^2 \approx 0.23$) suggests that only 23% of the variability in investment rates is explained by the time trend, with the remaining 77% influenced by other economic or policy variables not captured in the model. The F-statistic of 9.1 confirms the model's moderate explanatory power for the observed data. The GDP growth rate showed substantial variation across the study period. It reached a historical low of 1.1% in 1991 and peaked at 7.2% in 2008, with an average annual growth rate of approximately 4.0%. A notable improvement occurred during 2006–2008, with growth rates of 6.9%, 7.1%, and 7.2%, respectively, driven mainly by structural reforms initiated during the economic liberalization period 1986–2003, particularly adopting a floating exchange rate regime. However, GDP growth decelerated to 4.7% in 2009 in response to the global financial crisis. Although it briefly rebounded to 5.1% in 2010, the economy faced renewed contraction during the political unrest of 2011–2014, with growth rates falling between 1.8% and 2.9%. This underscores the sensitivity of economic performance to both internal political stability and external financial shocks.

Table 4. Time Trend Equations of Economic Variables Influencing Economic Development in Egypt

Equation	Variables	Amount of Change	Annual Growth Rate (%)	T-statistic	R ²	F-statistic
8	Capital coefficient	- 0.12	(2.69)	(-1.99)	0.12	3.96
9	Savings rate	0.02	0.19	(0.21)	0.01	0.04
10	Investment rate	0.98	5.04	(3.01)**	0.23	9.06**

Note: Significant at the 1% level (**), () indicates a negative value. Where: Y_i represents the estimated value of the economic variable under study, T_i denotes the time variable, $i=1,2,3,\dots,32$ corresponds to the number of years in the study period—source: Computed results based on the data presented in Table 3.

3.3. Forecasting Economic Indicators Influencing Economic Development Rates in Egypt

Table 5 demonstrates the forecasted values of key economic variables influencing economic development in Egypt for 2022–2030, based on a simple linear regression forecasting model. The projections reveal an upward trend across most indicators, reflecting continued economic growth. The GDP is projected to rise from approximately EGP 3,356.8 billion in 2022 to about EGP 4,345.8 billion in 2030, with an estimated average of EGP 3,851.3 billion over the forecast period. This suggests a steady and sustained economic expansion.

Gross domestic savings are expected to increase from EGP 353.0 billion in 2022 to EGP 457.5 billion by 2030, with an average annual value of EGP 405.2 billion, indicating a moderate improvement in national savings behavior, potentially supporting higher investment levels. The investment is forecasted to grow from EGP 1,322.7 billion in 2022 to EGP 1,761.1 billion in 2030, with an average annual level of approximately EGP 1,541.9 billion. This reflects a strong upward trend, underscoring the government and private sector's role in capital accumulation and infrastructure development.

Projections for national capital show an increase from EGP 639.7 billion in 2022 to EGP 830.2 billion in 2030, averaging EGP 733.4 billion during the forecast period. This growth in capital stock indicates positive momentum in long-term productive capacity. National exports are also expected to experience growth, increasing from EGP 400.9 billion in 2022 to EGP 507.8 billion in 2030, with an average annual value of EGP 454.4 billion. This trend signals potential improvements in export competitiveness and diversification.

Table 5. Forecasted Values of Economic Variables Influencing Economic Development Rates in Egypt

Years	Gross Domestic Product	National Capital	Domestic Savings	Investment	Exports	Imports	Population	Capital coefficient
2022	3356.75	639.74	352.96	1322.67	400.91	701.62	102.95	3.09
2023	3480.39	660.05	366.02	1377.48	414.27	727.01	104.48	2.98
2024	3604.02	684.36	379.08	1432.29	427.64	752.40	106.00	2.86
2025	3727.66	708.67	392.14	1487.09	441.00	777.79	107.53	2.75
2026	3851.30	732.98	405.21	1541.90	454.36	803.17	109.06	2.63
2027	3974.94	757.30	418.27	1596.71	467.73	828.56	110.59	2.52
2028	4098.57	781.61	431.33	1651.52	481.09	853.95	112.11	2.40
2029	4222.21	805.92	444.39	1706.32	494.45	879.34	113.64	2.29
2030	4345.85	830.23	457.45	1761.13	507.82	904.73	115.17	2.17

Average	3851.30	733.43	405.21	1541.90	454.36	803.17	109.06	2.62
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Note: Value in million pounds, population in million people. *Source:* Computed results based on the data presented in Table 3.

Conversely, national imports are projected to rise from EGP 701.6 billion in 2022 to EGP 904.7 billion in 2030, with an average of EGP 803.2 billion. While this reflects increased demand and consumption, it also underscores the need for policies to address trade imbalances and enhance domestic production. Egypt's population is expected to grow from approximately 103.0 million in 2022 to around 115.0 million by 2030, with an average of 109.0 million. This demographic growth presents opportunities and challenges, particularly regarding employment, housing, education, and healthcare services. The capital-output ratio is forecasted to range between 3.1 and 2.2, with an average of 2.6 during the forecast period. This implies that for every EGP 2.6 invested, GDP is expected to increase by one pound. The declining trend in this ratio suggests improving capital efficiency and greater investment productivity.

Overall, the forecasted indicators point to positive developments in Egypt's economic landscape, contingent on maintaining macroeconomic stability, enhancing institutional capacity, and implementing reforms that support inclusive and sustainable growth.

3.4. Empirical Application of the Harrod-Domar Growth Model

Table 6 illustrates a slight decline in Egypt's economic development rate, decreasing from approximately 4.2% in 2022 to around 4.1% by 2030, with an overall average growth rate of 4.2% during the forecast period. This modest decline is primarily attributed to a rise in the marginal capital-output ratio, which averaged approximately 2.6%, compared to an average of 4.4% from 1990 to 2021. The higher marginal capital ratio signals a decline in capital productivity, meaning that more capital investment is recently required to generate each unit of GDP growth. Despite this, the domestic savings rate is expected to increase slightly from 10.51% in 2022 to 10.53% by 2030, with an overall average of 10.52%, indicating some improvement in national savings. At the same time, the population growth rate remains steady at around 2.0%. Consequently, the per capita income growth rate, calculated by subtracting population growth from GDP growth, is projected to range from 2.2% in 2022 to 2.1% in 2030, with an average of 2.2%. These figures suggest modest improvements in living standards. The investment rate is forecasted to rise from 39.4% of GDP in 2022 to 40.5% by 2030, averaging 40.0%. This reflects a consistent increase in investment, growing from EGP 1,322.7 billion in 2022 to EGP 1,761.1 billion in 2030, with an average of EGP 1,541.9 billion.

Table 6. Estimated National Investment Requirements, Foreign Trade Deficit, and Domestic Resource Gap in Egypt

Years	Gross Domestic Product rate	Foreign trade gap	Domestic savings growth rate	Required Investment	%	Domestic resource gap	Population growth rate	Capital/output ratio
2022	4.22	-300.71	10.51	1322.67	39.4	-969.71	2	3.09
2023	4.22	-312.74	10.52	1377.48	39.58	-1011.46	2	2.98
2024	4.21	-324.76	10.52	1432.29	39.74	-1053.21	2	2.86
2025	4.21	-336.79	10.52	1487.09	39.89	-1094.95	2	2.75
2026	4.2	-348.81	10.52	1541.9	40.04	-1136.69	2	2.63
2027	4.2	-360.83	10.52	1596.71	40.17	-117.44	2	2.52
2028	4.2	-372.86	10.52	1651.52	40.3	-1220.19	2	2.4
2029	4.19	-384.89	10.53	1706.32	40.41	-1261.93	2	2.29
2030	4.19	-396.91	10.53	1761.13	40.52	-1303.68	2	2.17

Average	4.2			1541.9	40.0	(1018.81)	2.0	2.62
Strategy 2030	7.0	(348.82)	10.52	15.19	10.5%		15.19	1541.9

Note: () Indicates a negative value, Source: Computed results based on the data presented in Tables 1, and 3,5.

However, this rising investment does not appear fully matched by domestic savings, revealing a persistent domestic resource gap. This gap is expected to increase from EGP 969.7 billion in 2022 to EGP 1,303.6 billion in 2030, with an average of EGP 1,018.8 billion. This indicates a continued reliance on foreign capital inflows to finance investment, rather than domestic savings alone. Additionally, the foreign trade gap is expected to widen, increasing from approximately EGP 300.7 billion in 2022 to EGP 396.9 billion by 2030, with an average of EGP 348.8 billion over the forecast period. This reflects continued challenges in the balance of payments and highlights the need for increased export revenues and foreign exchange earnings.

Egypt’s Vision 2030 outlines a clear and ambitious strategy that prioritizes the economic development of productive sectors, with the dual goals of increasing national capital and enhancing the competitiveness of Egyptian products in domestic and international markets. One of the central objectives of this strategy is to achieve a real GDP growth rate of approximately 7.0% by the year 2030. However, based on the results of the forecasting model, Egypt’s projected GDP growth rate from 2022 to 2030 is significantly lower, averaging around 4.2%. This discrepancy suggests a substantial gap between the forecasted trajectory and the strategic development targets.

Given an expected capital coefficient (MCOR) of 2.17 in 2030, the required savings (or investment) rate to achieve a 7.0% GDP growth rate is calculated as:

$sY=2.17\times7\%=15.19\%$

To achieve a 7.0% growth rate, Egypt must allocate approximately 15.2% of GDP to national savings or investment. However, the projected national savings rate during the forecast period is only around 10.5%, revealing a domestic resource gap of approximately 4.7% of GDP. Although Egypt’s 2030 strategy also targets an overall investment rate of 30% of GDP, the gap between domestic savings and required investment implies continued dependence on foreign capital and external financing to meet national development objectives. This structural imbalance highlights the need for policies that stimulate domestic savings, increase investment efficiency, and improve capital productivity.

4. Conclusion and Policy Implications

4.1. Conclusion

This study has examined Egypt’s macroeconomic trajectory through the lens of the Harrod-Domar growth model, focusing on the dynamics of national savings, investment, and capital stock about GDP growth and demographic trends. The empirical analysis, which combines historical data and future projections up to 2030, confirms the persistence of a domestic resource gap, a structural imbalance wherein national savings falls short of financing the level of investment required to sustain targeted economic growth. While Egypt has made notable strides in boosting its investment levels, particularly through large-scale public infrastructure projects and foreign capital inflows, the relatively low and stagnant savings rate remains a critical bottleneck. With a growing population and rising demand for jobs, services, and infrastructure, the pressure to maintain high growth rates necessitates even greater investment efforts. However, unless domestic savings are significantly increased, Egypt will remain reliant on external financing sources, which could expose the economy to vulnerabilities such as debt accumulation, currency instability, and external shocks. The Harrod-Domar analysis underscores that achieving

Egypt's Vision 2030 growth aspirations, particularly in terms of GDP expansion, poverty reduction, and structural transformation, requires a recalibration of resource mobilization strategies. The current trajectory suggests that without substantial improvement in domestic savings and capital efficiency, the country risks falling short of its development targets or becoming excessively dependent on foreign capital.

4.2. Policy Implications

To effectively bridge the domestic resource gap and align with the objectives of Egypt's Vision 2030, a multi-pronged policy approach is essential:

- Promote financial inclusion by expanding access to banking and digital financial services, especially in rural and underserved areas.
- Prioritize high-multiplier investments in renewable energy, logistics, and agro-processing sectors that yield broad developmental spillovers.
- Encourage Public-Private Partnerships to leverage private capital while improving governance and risk-sharing in infrastructure projects.
- Improve the business environment by simplifying regulations, ensuring policy stability, and strengthening property rights.

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